Characteristics of the most important outbreaks of legionnaire’s disease in France from 1998 to 2007

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Background
In France, the notification of legionnaire’s disease (LD) cases is mandatory since 1987. A study in 1995 showed under-reporting (estimated sensibility = 17%), the surveillance system was strengthened in 1997. The incidence rate was 2.3 per 100,000 population in 2007. Between 1998 and 2007, 9,915 cases were notified but few outbreaks occurred.

Our study describes the characteristics of these outbreaks.

Methods
Case definitions:
- Patient presenting with pneumonia and one of the following laboratory results:
  - isolation of Legionella
  - indirect detection of Legionella pneumophila antigen in urine
  - a fourfold rise in antibody titre to Legionella
- A presumptive case:
  - a single titre high in antibody to Legionella
- Patient presenting with pneumonia, who shared the same exposure as a confirmed case but with no laboratory confirmation of LD
- A possible case:
  - An outbreak was defined as the occurrence of more than 10 cases of LD linked in terms of time and place.

Laboratory methods:
- Subtyping using pulsed-field gel electrophoresis (PFGE)
- Comparison of human and environmental strains
- The characteristics of the outbreak cases were compared to those notified in France during the same period (1998–2007) = national data.

Results
Description of outbreaks
Between 1998 and 2007, 14 outbreaks were identified, corresponding to 380 (3.8%) notified cases.
- Detection of outbreak:
  - 1 by the French local authorities
  - 1 by the Ewgli network [2]
  - 1 by the National reference centre for Legionella [3]
- Fourteen cases from 3 outbreaks were reported by Ewgli
- An outbreak was defined as the occurrence of more than 10 cases of LD linked in terms of time and place
- Laboratory methods
  - Subtyping using pulsed-field gel electrophoresis (PFGE)
  - Comparison of human and environmental strains
- The characteristics of the outbreak cases were compared to those notified in France during the same period (1998–2007) = national data.
- In 13/14 outbreaks, cooling tower(s) was identified or suspected as the source of contamination.
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- In these outbreaks, laboratory results were introduced:
  - laboratory results
  - laboratory results
  - laboratory results

Discussion
The reinforced surveillance system for LD has enabled more rapid detection and investigation of outbreaks by improving sensitivity

Conclusion
The reinforced surveillance system for LD has enabled more rapid detection and investigation of outbreaks by improving sensitivity, and health doctors were the probable source of the majority of outbreaks, which emphasizes the need to still strengthen regulations in order to better control the dispersion of Legionella from these sources.

Table

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<tr>
<th>TABLE</th>
<th>COMPARISON OF CASES INVOLVED IN OUTBREAKS TO NATIONAL DATA OF LD IN FRANCE 1998-2007</th>
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<tbody>
<tr>
<td></td>
<td>Total of cases</td>
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<tr>
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<td>380</td>
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<td>Diagnosed by urinary antigen</td>
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<td>Isolate available</td>
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<td>Sex ratio MF</td>
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<td>Median age (years)</td>
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<td>Presence of risk factors</td>
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<td>Case fatality rate</td>
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References

FIGURE 1
INCIDENCE RATE AND ANNUAL DISTRIBUTION OF LD OUTBREAKS IN FRANCE 1987-2007

FIGURE 2
GEOGRAPHIC DISTRIBUTION OF LD OUTBREAKS IN FRANCE 1998-2007

FIGURE 3
NUMBER OF CASES IN EACH LD OUTBREAK IN FRANCE 1998-2000

FIGURE 4
DURATION OF LD OUTBREAKS IN FRANCE 1998-2007

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